



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,107	07/30/2003	Noah Horton	100110403-I	8320
22879	7590	07/26/2005	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			BRAUTIGAM, ALYSA N	
			ART UNIT	PAPER NUMBER
			2676	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/630,107	HORTON ET AL.
	Examiner	Art Unit
	Alysa N. Brautigam	2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 06 May 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-38 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 1-7, 12, 13, 16, 18-25 and 29 is/are allowed.

6) Claim(s) 8-15, 17 and 26-38 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 30 July 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 6 May 2005 have been fully considered but they are not persuasive. Specifically, Applicant asserts that the 35 U.S.C. § 102 rejections of claims 8, 17, and 26 are improper because Malzbender fails to disclose all the features claimed by Applicant. However, the Examiner believes Malzbender does, in fact, disclose the feature in question as it is claimed, i.e., a texture map manager configured to receive a command to combine...the texture map manager configured to convert, in response to the command...," as broadly as claimed. As disclosed in the Non-Final Rejection, Malzbender clearly discloses the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps (paragraphs 0028, 0029, and 0052 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039). In addition to the disclosure of the user input, Malzbender discloses the system as comprised of software and hardware functioning together where it is an inherent property of such a system that hardware functions in *response to commands* issued from software (Figures 1, 3, and 5; paragraph 0022-0026, 0032, and 0040).

Drawings

2. Applicant's arguments, see pages 2-6 and 16-17, as well as the replacement drawing sheets, filed 6 May 2005, with respect to the following have been fully considered and are persuasive.

- Figure 6, Item 81
- Figure 7, Item 81
- Figure 9, Items 156 and 158
- Figure 14, Item 457
- Figure 15, Item 531

The objection to the drawings has been withdrawn.

Specification

3. Applicant's arguments, see pages 2-6 and 16-17, filed 6 May 2005, with respect to the following have been fully considered and are persuasive.

- Paragraph 0032, line 11
- Paragraph 0081
- Paragraph 0092

The objection to the specification has been withdrawn.

Claim Rejections - 35 USC § 112

4. Applicant's amendment, see page 13, filed 6 May 2005, with respect to claim 29 has been fully considered and is persuasive. The rejection of claim 29 has been withdrawn.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 8-11, 14-15, 17, 26-28, and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Malzbender et al. (U.S. Patent Application Number: 2002/0060679).

7. In regards to claim 8, Malzbender discloses a texture mapping system, comprising:

- memory for storing a first texture map and a parametric texture map (figure 1 and paragraphs 0022-0023 disclose the memory for storing the texture maps; paragraphs 0028-0029 discloses the plurality of texture maps); and a
- texture map manager (Figure 1, Item 14 discloses the graphics processor which performs the functions of a texture map manager, it is further noted that Applicant has disclosed a "graphics adapter" [figure 9, item 142 in

Applicant's specification] as performing the function of the texture map manager) configured to receive a command to combine at least a portion of the first texture map and at least a portion of the parametric texture map (paragraphs 0028 and 0029 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039 all disclose the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps; paragraphs 0046 discloses further embodiments combining a PTM with another texture map) the

- texture map manager configured to convert, in response to the command, the first texture map portion into a form corresponding to a form of the parametric texture map portion (paragraphs 0050, 0051, and 0052 disclose the conversion of texture map portions from one form into another where, it is noted, Applicant has defined the "form" or "type" as a difference in data [page 32, paragraph 0098 of Applicant's specification]) and to combine the first texture map portion and the parametric texture map portion (paragraphs 0028, 0029, and 0052 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039 all disclose the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps).

8. In regards to claim 9, Malzbender discloses the system of claim 8, wherein the first texture map is a parametric texture map (paragraph 0013 and throughout disclose the parametric texture maps).

9. In regards to claim 10, Malzbender discloses the system of claim 8, wherein the parametric texture map portion defines a plurality of texels (paragraph 0027), each of the texels defining a luminosity value that is a function of light direction (paragraph 0038 discloses texel defining a luminosity value; paragraph 0013 defines these values as a function of light direction).

10. In regards to claim 11, Malzbender discloses the system of claim 8, wherein the texture map manager, in converting the first texture map portion, is configured to assign a predetermined value to at least one texel of the first texture map portion (paragraph 0025 and, more particularly, paragraph 0027 discloses the predetermined values assigned to the texels of the texture map portions).

11. In regards to claim 14, Malzbender discloses the system of claim 8, wherein the texture map manager, in converting the first texture map portion, is configured to define a new luminosity value for a texel of the first texture map portion (Figure 3 and paragraph 0032 disclose the texture map manager configured to define a new luminosity values based upon user-input).

12. In regards to claim 15, Malzbender discloses the system of claim 14, wherein the new luminosity value is a function of light direction (paragraph 0032 discloses the "user-defined" value as a "light source vector").

13. In regards to claim 17, Malzbender discloses a texture mapping system, comprising:

- means for storing a first texture map and a parametric texture map (figure 1 and paragraphs 0022-0023 disclose the memory for storing the texture maps; paragraphs 0028-0029 discloses the plurality of texture maps); and
- means for combining (Figure 1, Item 14 discloses the graphics processor which performs the functions of a texture map manager, it is further noted that Applicant has disclosed a "graphics adapter" [figure 9, item 142 in Applicant's specification] as performing the function of the texture map manager), in response to a command, the first texture map and a parametric texture map thereby forming a combined texture map (paragraphs 0028 and 0029 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039 all disclose the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps; paragraphs 0046 discloses further embodiments combining a PTM with another texture map),
- the combining means configured to convert, in response to the command, the first texture map portion into a form compatible with a form of the parametric texture map portion (paragraphs 0050, 0051, and 0052 disclose the conversion of texture map portions from one form into another where, it is noted, Applicant has defined the "form" or "type" as a

difference in data [page 32, paragraph 0098 of Applicant's specification]) and to combine the first texture map portion and the parametric texture map portion (paragraphs 0028, 0029, and 0052 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039 all disclose the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps).

14. In regards to claim 26, Malzbender discloses a texture mapping method, comprising:

- receiving a command to combine at least a portion of a first texture map and at least a portion of a parametric texture map (paragraphs 0028 and 0029 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039 all disclose the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps; paragraphs 0046 discloses further embodiments combining a PTM with another texture map);
- converting, in response to the command, the first texture map into a form compatible with a form of the parametric texture map portion (paragraphs 0050, 0051, and 0052 disclose the conversion of texture map portions from one form into another where, it is noted, Applicant has defined the "form" or "type" as a difference in data [page 32, paragraph 0098 of Applicant's specification]) and to combine the first texture map portion and

the parametric texture map portion (paragraphs 0028, 0029, and 0052 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039 all disclose the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps); and

- combining the first texture map portion and the parametric texture map portion in response to the command (paragraphs 0028 and 0029 disclose the combination of texture map portions; paragraphs 0013, 0024, 0026, 0028, 0032, 0039 all disclose the input of user data such that it is clear the graphics adapter is configured to receive commands regarding the combination of texture maps; paragraphs 0046 discloses further embodiments combining a PTM with another texture map).

15. In regards to claim 27, Malzbender discloses the method of claim 26, wherein the first texture map is a parametric texture map (paragraph 0013 and throughout disclose the parametric texture maps).

16. In regards to claim 28, Malzbender discloses the method of claim 26, wherein the converting further comprises assigning a predetermined value to at least one texel of the first texture map portion (paragraph 0025 and, more particularly, paragraph 0027 discloses the predetermined values assigned to the texels of the texture map portions).

17. In regards to claim 30, Malzbender discloses the method of claim 26, wherein the converting further comprises defining a new luminosity value for a texel of the first

texture map portion (Figure 3 and paragraph 0032 disclose the texture map manager configured to define a new luminosity values based upon user-input).

18. In regards to claim 31, Malzbender discloses the method of claim 30, wherein the luminosity value is a function of light direction (paragraph 0032 discloses the "user-defined" value as a "light source vector").

19. In regards to claim 32, Malzbender discloses the system of claim 8, wherein the texture map manager is configured to convert the first texture map portion into the form corresponding to the form of the parametric texture map portion before combining the first texture map portion and the parametric texture map portion (paragraphs 0050, 0051, and 0052 disclose the conversion of texture map portions from one form into another where, it is noted, Applicant has defined the "form" or "type" as a difference in data [page 32, paragraph 0098 of Applicant's specification]).

20. In regards to claim 33, Malzbender discloses the system of claim 8, wherein the texture map manager by combining the first texture map portion and the parametric texture map portion forms a combined texture map having a first set of texels and a second set of texels, and wherein the texture map manager is configured to define the first set of the texels based on the first texture map portion and to define the second set of the texels based on the parametric texture map portion and not the first texture map portion (Table 1 discloses the texel data; paragraphs 0026-0028 disclose the combination of the texture map portions such that Table 1 is the result of the combination and is based on the first texture map portion and to define the second set

of the texels based on the parametric texture map portion and not the first texture map portion).

21. In regards to claim 34, Malzbender discloses the system of claim 8, wherein the texture map manager by combining the first texture map portion and the parametric texture map portion forms a combined texture map having a plurality of texels, the texels based on color values of a color component from the first texture map and color values of the color component from the parametric texture map (Table 1; paragraphs 0025-0028; (paragraph 0038 discloses texel defining a luminosity value where luminosity is a component of the color data).

22. In regards to claim 35, Malzbender discloses the system of claim 17, wherein the combined texture map has a first set of texels based on the parametric texture map portion and not the first texture map (Table 1 discloses the texel data; paragraphs 0026-0028 disclose the combination of the texture map portions such that Table 1 is the result of the combination and has a first set of texels based on the first texture map portion).

23. In regards to claim 36, Malzbender discloses the method of claim 26, wherein the combining comprises forming a combined texture map having a plurality of texels, the texels based on color values of a color component from the first texture map and color values of the color component from the second texture map (Table 1; paragraphs 0025-0028; (paragraph 0038 discloses texel defining a luminosity value where luminosity is a component of the color data).

24. In regards to claim 37, Malzbender discloses the method of claim 26, wherein the combining comprises forming a combined texture map having a first set of texels and a

second set of texels, the first set of texels based on the first texture map portion and the second set of texels based on the parametric texture map portion and not the first texture map (Table 1 discloses the texel data; paragraphs 0026-0028 disclose the combination of the texture map portions such that Table 1 is the result of the combination and is based on the first texture map portion and to define the second set of the texels based on the parametric texture map portion and not the first texture map portion).

25. In regards to claim 38, Malzbender discloses the method of claim 26, wherein the converting is performed before the combining (paragraphs 0050, 0051, and 0052 disclose the conversion of texture map portions from one form into another where, it is noted, Applicant has defined the “form” or “type” as a difference in data [page 32, paragraph 0098 of Applicant’s specification]).

Allowable Subject Matter

26. Claims 1-7, 16, and 20-25 are allowed.

27. The following is an examiner’s statement of reasons for allowance:

28. While prior art clearly teaches memory for storing texture maps and parametric texture maps as well texture map managers to convert and combine texture maps, prior art fails to teach or suggest, either alone or in combination, a texture mapping system comprising a texture map manager configured to “determine a texture map type for the first texture map and a texture map type for the parametric texture map and to perform a prioritization of the texture map portions based on the determined texture map types.”

In addition, prior art does not teach or suggest the “texture map manager further configured to select, for conversion, one of the texture map portions **based on the prioritization.**”

29. Claims 12-13, 18-19, and 29 are allowed

30. The following is an examiner’s statement of reasons for allowance:

31. While prior art clearly teaches memory for storing texture maps and parametric texture maps as well texture map managers to convert and combine texture maps, prior art fails to teach or suggest, either alone or in combination, a texture mapping system comprising a texture map manager configured to “determine a texture map type for the first texture map and a texture map type for the parametric texture map and to perform a prioritization of the texture map portions based on the determined texture map types.”

In addition, prior art does not teach or suggest the “texture map manager further configured to select the first texture map for conversion **based on the prioritization.**”

32. The closest prior art, although not entirely as claimed, discloses the background of polynomial texture maps (equivalent to Applicant’s parametric texture maps) including the desirability of combining texture maps and conversion of texture maps from one type to another.

33. Malzbender et al. (“Polynomial Texture Maps”) discloses the acquisition of polynomial texture maps by means of photographic equipment. Malzbender also discloses the conversion of bump maps to polynomial texture maps and the

combination of a plurality of texture maps. However, Malzbender does not teach or suggest the determination of texture map type by a texture map manager nor does Malzbender disclose prioritization and conversion based on said prioritization.

34. Malzbender et al. (U.S. Patent Application Number : 2002/0060679) discloses a method and apparatus for 3D objects with parametric texture maps including one embodiment in which “a parametric texture map may be adapted to a particular color channel of a display” and wherein “different blending modes” can be used to combine “parametric texture map evaluation results with calculated lighting, texture maps, or other sources during texture blending.” However, Malzbender does not teach or suggest the determination of texture map type by a texture map manager nor does Malzbender disclose prioritization and conversion based on said prioritization.

35. Hel-Or et al. (“Synthesis of Reflectance Function Textures from Examples”) discloses a method for leveraging the image-based representation of polynomial texture maps for the purposes of synthesizing textures. Hel-Or discloses wherein the polynomial texture maps can be used in place of conventional texture maps and applied to 3D objects. Hel-Or further discloses the plurality of texture map forms similar to that disclosed by Applicant. However, Hel-Or does not teach or suggest the determination of texture map type by a texture map manager nor does Hel-Or disclose prioritization and conversion based on said prioritization.

36. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

37. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alysa N. Brautigam whose telephone number is 571-272-7780. The examiner can normally be reached on 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

anb



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600